PLANETARY PHENOMENA FOR MAY AND JUNE, 1914.

By Malcolm McNeill.

PHASES OF THE MOON, PACIFIC TIME.

First Quarter..	May	2,	10^h	29^m	P.M.	First Quarter..	June	1,	6^h	3^m	A.M.
Full Moon	"	9,	1	31	P.M.	Full Moon ...	"	7,	9	18	P.M.
Last Quarter..	"	16,	2	12	P.M.	Last Quarter..	"	15,	6	20	A.M.
New Moon ...	"	24,	6	35	P.M.	New Moon ...	"	23,	7	33	A.M.
						First Quarter.	"	30,	11	24	A.M.

The Sun reaches the summer solstice and summer begins on June 21st shortly before 11 P. M., Pacific time.

Mercury on May 1st is a morning star, rising about three-quarters of an hour before sunrise, and is therefore too near the Sun for naked-eye observations. It moves on toward superior conjunction, reaching it and becoming an evening star on the morning of May 17th. The apparent distance between the bodies rapidly increases, and by June 1st the planet remains above the horizon nearly an hour and a half after sunset. On June 18th the planet reaches its greatest east elongation, and will then remain above the horizon a little more than an hour and three quarters after sunset. After this the planet and the Sun approach each other, but the distance between them remains great enuf so that the planet remains above the horizon more than an hour after sunset, until after the end of the month. Therefore from the last week in May until July *Mercury* is in good position for evening observation, and about the middle of June it is in a specially good position. This is by far the best period of the year for seeing this planet. The greatest east elongation, 24° 52′, is larger than the average, as the planet comes to its aphelion on July 3d. Also at the end of May *Mercury's* heliocentric latitude is greatest; that is, it is about 2° north of the Sun's path, and this retards its setting some minutes. On May 28th it is in conjunction with *Saturn,* but the nearest approach is 3°, and it occurs during daylight in the United States. On June 25th, 2 P. M. Pacific time, it is in conjunction with *Neptune,* the latter being only 10′ north.

There will be another conjunction of the same planets on July 8th.

Venus remains an evening star, being a little farther from the Sun and in better position for observation than during the early spring. On May 1st the planet remains above the horizon somewhat more than an hour and one half after sunset. This interval increases to rather more than two hours by June 1st and remains practically constant thruout that month. The planet on May 1st is in the constellation *Taurus* between the *Pleiades* and *Hyades,* and moves eastward out of *Taurus* thru *Gemini* and *Cancer* almost to *Leo.* On the morning of May 16th it is in conjunction with *Saturn,* but the nearest approach is not close and occurs during daylight in this country. It is also in conjunction with *Neptune* on June 16th, 6 P. M. Pacific time, passing 2° 14′ north of the latter.

Mars is still in good position, but its apparent distance from the Sun is gradually growing smaller. On May 1st it remains above the horizon until nearly 1 A. M., but by the end of June it sets at about half-after 10 P. M. During the two months it moves 33° eastward and 11° southward from the constellation *Cancer* into *Leo.* On June 23d it passes less than 1° south of the first-magnitude star *Regulus, α Leonis.* It will then be distinctly less bright than the star, its brightness being only about 10 per cent of that which it had at the time of opposition early in January. Its minimum brightness, about that of a standard second-magnitude star, like the pole star, will, however, not be reached for several months. Its actual distance from the Earth is still growing rapidly larger, changing from 141,000,000 to 187,000,000 miles during the two months. On May 30th and again on June 27th the Moon passes very close to it, the planet being occulted for certain parts of the Earth on the first of the two dates.

Jupiter rises on May 1st shortly before 2 A. M. and on June 30th at about 10 P. M. It is in the eastern part of the constellation *Capricorn* and up to June 11th it moves slowly about 2½° eastward. It then begins to move westward along a line a little to the south of its line of eastward motion and at the end of June will be nearly in the position it held on May 23d. On the evening of June 12th it will be in very close conjunction

with the Moon and will be occulted for certain portions of the southern hemisphere.

Saturn remains an evening star until the morning of June 13th, when it passes conjunction with the Sun and becomes a morning star. During most of the two months' period, therefore, it is too close to the Sun for naked-eye observation. On May 1st it sets not quite three hours after sunset, but before the end of the month the interval shortens to considerably less than one hour, and the planet will then not be bright enuf to be seen in the evening twilight. By the end of June it will rise not quite an hour before the Sun. The planet is in the eastern part of the constellation *Taurus* and moves about 8° eastward during the two months. Its conjunctions with *Mercury* and *Venus* have already been mentioned.

Uranus rises on May 1st at about half-after 1 A. M. and at about 9:30 P. M. on June 30th. It is nearly stationary in the constellation *Capricorn,* moving a little eastward until May 17th and then moving westward, but the whole motion is less than 1°. There is no bright star near it, but during the early part of May it is about 1° west and a little south of the fourth-magnitude star *θ Capricorni.* After the middle of May it moves away from the star toward the west.

Neptune is in the western sky in the evening, not setting until after midnight on May 1st, and somewhat after eight on June 30th. It remains near the dividing-line of *Gemini* and *Cancer.*

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